

## REMARKS

### Summary of Office Action

Claims 1-19 are pending in the above-identified patent application.

Claims 1-19 stand rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement.

Claims 1-10, 12-16, and 18-19 stand rejected under 35 U.S.C. § 103(a) as being obvious over Al Bandar et al. U.S. Patent Application Publication No. 2004/0181145 ("Al Bandar") in view of Black et al. U.S. Patent No. 5,802,220 ("Black") in further view of Greenfield "It's Illegal to Lie to Stockbrokers, but Not to Employees; [Metro Final Edition]", The Sacramento Bee. Sacramento, California: July 6, 1998, pg. B.5 ("Greenfield").

Claims 11 and 17 stand rejected under 35 U.S.C. § 103(a) as being obvious over Al Bandar in view of Black in further view of Greenfield in still further view of Johnson, JR. U.S. Patent Application Publication No. 2002/0062089 ("Johnson").

### Summary of Applicant's Reply

Applicant notes with appreciation the Examiner's indication that the Requirement for Information under 37 C.F.R. § 1.105 has been satisfied.\*

Applicant has amended independent claims 1 and 6, as well as dependent claims 18 and 19, to more particularly

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\* The Examiner has included a section in the Office Action entitled "Previous Requirement for Information under 37 C.F.R. § 1.105," which acknowledges the applicant's response to the Requirement in the Reply to Office Action filed October 19, 2009, and which includes no new or expanded request for information.

define the invention. No new matter has been added and the amendments are fully supported by the original specification.

The Examiner's rejections are respectfully traversed.

Applicant's Reply to the 35 U.S.C. § 112 Rejection

The Examiner has rejected claims 1-19 under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement.

In regard to claims 1 and 6, the Examiner contends that the applicant's specification does not sufficiently describe a processor that can review a record of a corporate disclosure to determine the presence of a cluster of deceptive behaviors responsive to a stimulus. Applicant respectfully submits, however, that claims 1 and 6, as amended, are fully supported by the originally filed specification.

In particular, amended claims 1 and 6 recite that the processor is used to review/analyze the record of the corporate disclosure in order to detect deceptive behaviors responsive to a stimulus. This feature is supported at least in paragraph 54 of the applicant's specification, which discloses a computer-based detection process "that is capable of reviewing the record [...] and determining the occurrence of possible deceptive behavior within the recorded disclosure." The applicant's specification further discloses, *ibid*, that the detection process "may include a software process capable of analyzing the speech or text of a corporate disclosure and identifying within the speech certain trigger words that are indicative of deceptive behavior," or that it "may include a video processor that is capable of analyzing video data stored as part of the record [...] to determine suspected indicia of deceptive behavior." Applicant respectfully submits that the disclosed detection process, software process, and video processor all provide sufficient

support for the claimed feature of detecting deceptive behaviors with a processor.

In regard to claims 8 and 16, the Examiner asserts that the specification does not provide disclosure for the detection of a deceptive behavior that begins after a stimulus time interval and after the end of all prior deceptive behaviors already included within a cluster of deceptive behaviors and excluding that deceptive behavior from the cluster. Applicant respectfully submits, however, that claims 8 and 16 are fully supported by the originally filed specification.

For instance, paragraph 10 of applicant's specification discloses that "all or any portion of a disclosure may be analyzed to identify potentially deceptive statements by a representative" (emphasis added). In addition, as the Examiner acknowledges in the § 112 rejection of claims 1 and 6, the applicant's disclosed detection process (see, paragraph 54), may detect deceptive behaviors without necessarily accounting for a timing element. Thus, applicant's specification clearly supports detection of behaviors at any point in a disclosure, including after a stimulus time interval and after other behaviors have ended. Furthermore, excluding such behaviors from a cluster of deceptive behaviors is inherent from the description of the composition of clusters of deceptive behaviors. In other words, since the specification describes (a) detecting behaviors at any point in a disclosure and (b) that a cluster includes only behaviors that satisfy certain timing criteria, it is inherent that behaviors may be detected that do not satisfy the timing criteria and which are therefore excluded from the cluster.

Moreover, from the very fact that multiple clusters may be identified, it is necessary that certain behaviors in one cluster be excluded from another cluster. That is, a behavior in one of the clusters necessarily occurs after the

stimulus time interval of another cluster and after the culmination of all prior behaviors in the other cluster. Otherwise, the two clusters would be amalgamated - by virtue of a common time interval or overlapping behaviors - into a single cluster.

Finally, in regard to claims 18 and 19, applicant has amended the claims, without prejudice, to remove the limitation of displaying two records on a display. As such, the Examiner's rejection is moot.

Accordingly, for at least the foregoing reasons, applicant respectfully requests that the rejection of claims 1-19 under 35 U.S.C. § 112 be withdrawn.

#### Applicant's Reply to the Prior Art Rejection

The Examiner has rejected claims 1-10, 12-16, and 18-19 under 35 U.S.C. § 103(a) as being obvious over Al Bandar in view of Black in further view of Greenfield. In addition, claims 11 and 17 have been rejected under 35 U.S.C. § 103(a) as being obvious over Al Bandar in view of Black in further view of Greenfield in still further view of Johnson.

#### Applicant's Amended Independent Claims 1 and 6

Applicant's amended independent claims 1 and 6 are directed toward, *inter alia*, a method and system for analyzing a corporate disclosure made by a representative to determine clusters of deceptive behaviors. A record of the disclosure is reviewed with a processor to detect deceptive behaviors responsive to a stimulus. A determination is made as to the presence of a cluster of deceptive behaviors that includes (i) at least one deceptive behavior that begins during a stimulus time interval determined by the stimulus onset and a predetermined period of time after the stimulus termination, and (ii) at least one deceptive behavior that begins after the stimulus time interval but before the end of a prior deceptive

behavior included in the cluster of deceptive behaviors. However, the cluster does not include any deceptive behaviors that begin after the stimulus time interval and after the end of all prior deceptive behaviors included in the cluster of deceptive behaviors. The record is annotated to indicate the presence of the cluster of deceptive behaviors within the corporate disclosure as well as the type and number of deceptive behaviors within the cluster of deceptive behaviors, wherein the types of deceptive behaviors are retrieved from a database.

Applicant's amended independent claims provide an advantageous and systematic approach for analyzing corporate disclosures to determine the presence of a cluster of deceptive behaviors. This systematic approach includes an exacting methodology for grouping behaviors as clusters, namely, a technique for evaluating deceptive behaviors according to specific timing criteria in order to ascertain their suitability for inclusion in a cluster of deceptive behaviors. As such, a cluster of deceptive behaviors is not merely an arbitrary group of deceptive behaviors, but a carefully defined entity that reveals desirable information about the fidelity of a corporate disclosure.

To make out a *prima facie* case of obviousness, the cited references must teach or suggest all the claim limitations of the rejected claim (MPEP § 2143). However, taken alone or in combination neither Al Bandar nor Black nor Greenfield shows or suggests all of the features recited by applicant's independent claims 1 and 6. Thus, the rejections of independent claims 1 and 6 under 35 U.S.C. § 103(a) should be withdrawn.

#### The Al Bandar Reference

Al Bandar refers to a fully automated method of analyzing a given subject's behavior. Observations of the subject are made, such as the subject's movement, via collecting multiple images - or "frames" - of the subject.

See Al Bandar, pars. 9, 23, 29, and 30. The observations are then coded into channels, which are individual aspects of overall behavior, e.g., particular facial movements. In some instances, a channel "represents the relationship between the current frame and one or more previous frames." See Al Bandar, par. 81. The coding process may include a record that that a particular behavior occurred, a measure of channel duration, or an opinion of a judge, and it may involve extracting features from the individual frames. See Al Bandar, pars. 9, 24, 30, and 31. The channels are analyzed "using an automatic machine classification technique," to provide information on whether the subject is exhibiting deceptive behavior. See Al Bandar, pars. 25 and 34. Channel signals can be collected over a number of frames and statistics may be derived for each channel over fixed or variable time periods. See Al Bandar, pars. 94-95. Statistics from multiple channels may be concatenated to produce a vector that represents the channel statistics over a time period in question. See Al Bandar, par. 98.

#### The Black Reference

Black discusses tracking head and facial features of a human subject over time by analyzing a sequence of images in order to categorize an expression (e.g., happiness, fear, sadness, etc.). Black includes an expression conflict resolution arbiter to determine whether multiple expressions are detected in overlapping time periods. When there is no overlap between a detected expression and any other detected expression, the currently detected expression is outputted. If, on the other hand, two detected expressions overlap, Black describes a technique for resolving the conflict to arrive at a single "resulting expression" for output. See Black, col. 23, lines 1-64 and FIG. 12.

#### The Greenfield Reference

Greenfield is a newspaper article about the lack of federal protection for employees subjected to employer fraud or nondisclosure. The article states that, because some employers lie to their employees, it is necessary for employees to be protected by the same legal standards for truthfulness and full disclosure routinely enjoyed by shareholders. See Greenfield, "Abstract."

A.    The Combination of Al Bandar, Black, and Greenfield does not Show or Suggest a Deceptive Behavior that Begins After a Stimulus Time Interval and Before the End of a Prior Deceptive Behavior Included in the Cluster of Deceptive Behaviors

Applicant respectfully submits that, taken alone or in combination, Al Bandar, Black, and Greenfield do not show or suggest a cluster of deceptive behaviors that includes "at least one of the [detected] deceptive behaviors that begins after the stimulus time interval and before the end of a prior deceptive behavior included in the cluster of deceptive behaviors," as recited by applicant's independent claims.

As described above, Al Bandar refers to concatenating statistics from multiple channels over a time period and, in some cases, collating the channel statistics from multiple time periods. See Al Bandar, pars. 97-99. However, merely concatenating statistics from multiple channels does not show or suggest the claimed cluster of deceptive behaviors. Clusters of deceptive behaviors, as recited in the applicant's claims, are particularly defined entities governed by explicit and carefully developed timing criteria. The timing criteria, among other things, requires that behaviors included in the cluster either begin within a predefined time interval set by a stimulus or within an extended time interval determined by the duration of another behavior already included in the cluster. Al Bandar's

concatenated channel statistics does not show or suggest at least this latter feature of applicant's claims. Specifically, Al Bandar does not discuss timing criteria for concatenating channel statistics that explicitly or implicitly shows inclusion of a behavior occurring after a stimulus time interval but before the end of a prior behavior already in the group. Concatenating channel statistics without regard for timing criteria, in other words, fails to show or suggest applicant's claimed technique of determining a cluster of behaviors in accordance with specific parameters governing the cluster's composition.

The Examiner, on the other hand, asserts that Al Bandar discloses this feature of applicant's claims. In support, the Examiner cites Al Bandar's discussion of "grouped data [that] includes a current frame and previous frames" and "slow and fleeting behaviors [that] occur concurrently." See Office Action, § 27. In other words, the Examiner appears to equate Al Bandar's grouped data (spanning multiple frames) and concurrent behaviors with the applicant's claimed cluster of deceptive behaviors that includes "at least one [deceptive behavior] that begins after the stimulus time interval and before the end of a prior deceptive behavior included in the cluster of deceptive behaviors." Applicant respectfully disputes these assertions.

First, applicant respectfully notes that Al Bandar's "grouped data" merely refers to grouping channel data derived from a number of individual frames. Frames are nothing but individual images collected, for example, from a video of a subject, and are not the same as behaviors or "channels." Rather, they are simply recorded observations of a subject from which channel information may be extracted. Therefore, the Examiner's assertion that Al Bandar's grouped data - which includes current and previous frames - is equivalent to the claimed cluster of deceptive behaviors is incorrect. Specifically, Al Bandar's discussion of current and previous



frames merely indicates that several images can be taken together to reveal channel information. The fact that these images are sequential (i.e., current and previous frames) reveals nothing about grouping multiple behaviors into a cluster and certainly does not disclose a cluster that includes "at least one [deceptive behavior] that begins after the stimulus time interval and before the end of a prior deceptive behavior included in the cluster of deceptive behaviors," as recited by applicant's independent claims.

Second, the Examiner's reference to Al Bandar's "slow and fleeting" behaviors also fails to show or suggest the claimed cluster of deceptive behaviors. In particular, Al Bandar states that "because some behaviors may have a slow pattern and others are fleeting (such as microexpressions), it may be advantageous to collate the channel statistics from one or more time periods to create [a] vector [that represents all the channel statistics over a time period in question]." See Al Bandar, pars. 98 and 99. Although Al Bandar collects data over several time periods, as described above, there is no disclosure as to particular systematic guidelines for grouping behaviors according to timing criteria. Specifically, there is no disclosure directed to the claimed feature of including, within a cluster, a behavior that occurs outside a predefined time interval but within the duration of another behavior previously included in the cluster. Thus, even if Al Bandar's description can be construed to imply that concurrent - or even overlapping - behaviors are grouped together, Al Bandar still fails to show or suggest including behaviors that overlap outside of a prescribed time interval, where one of the behaviors already satisfies the criteria for inclusion within the cluster (i.e., it falls within the prescribed time interval or it overlaps with yet another behavior itself satisfying the criteria).

In sum, the applicant's claims provide an approach to grouping behaviors that is much more than merely collecting

concurrent or overlapping behaviors. Instead, the claimed cluster necessarily includes at least one behavior that satisfies two criteria: (a) falling outside a predefined time interval and (b) beginning before the culmination of another behavior, where the other behavior is part of the cluster and therefore has already satisfied the requirements for inclusion. As discussed above, Al Bandar does not show or suggest this feature. In addition, nothing in Black or Greenfield makes up for this deficiency. For at least this reason, the Examiner's rejection of claims 1 and 6 should be withdrawn.

B. The Combination of Al Bandar, Black, and Greenfield does not Show or Suggest a Cluster of Deceptive Behaviors that Does Not Include Any Deceptive Behaviors that Begin After the Stimulus Time Interval and After the End of All Prior Deceptive Behaviors Included in the Cluster of Deceptive Behaviors

Applicant respectfully submits that, taken alone or in combination, Al Bandar, Black, and Greenfield do not show or suggest a cluster of deceptive behaviors that "does not include any of the deceptive behaviors that begin after the stimulus time interval and after the end of all prior deceptive behaviors included in the cluster of deceptive behaviors," as recited by applicant's independent claims.

The Examiner concedes that Al Bandar does not show this feature of applicant's claims but asserts that Black makes up for this deficiency in Al Bandar. In particular, the Examiner contends that Black "discloses determining whether two expressions have been detected and if they do not overlap, the current (i.e., the first) expression is outputted, thus the non-overlapping expression is not included in the cluster." See Office Action, § 31. As described above, Black includes an expression conflict resolution arbiter that ensures only a single "resulting expression" is chosen for

every time period no matter how many expressions are detected in those time periods. As such, in contrast to the claimed approach to determining a cluster of deceptive behaviors, Black's method specifically prevents the accumulation of multiple expressions into a group or cluster. Consequently, Black does not describe a cluster that excludes deceptive behaviors that (a) begin after a prescribed time interval and (b) do not overlap with any prior deceptive behaviors in the cluster, as required by applicant's claims. Rather, Black disallows the formation of any cluster, regardless of timing criteria, overlap, or any other parameter for determining the composition of a group of behaviors. Since no cluster can exist in Black *ab initio*, it follows that no behaviors can be excluded from a cluster as required by the applicant's claims.

Accordingly, neither Al Bandar nor Black shows this feature of applicant's claims. Moreover, nothing in Greenfield makes up for this deficiency. For at least this reason, the Examiner's rejection of claims 1 and 6 should be withdrawn.

C. Al Bandar and Black Cannot be Combined to  
Show all the Features of Claims 1 and 6

For the same reasons discussed above, applicant respectfully submits that Black cannot be combined with Al Bandar to show the features of the applicant's claims. In particular, Al Bandar refers to grouping channel data indicative of a subject's overall behavior. Black, on the other hand, refers to choosing between conflicting expressions. As such, despite the Examiner's contention, it would not have been obvious to one of ordinary skill in the art at the time of the invention to have excluded non-overlapping expressions, as disclosed in Black, in the system of Al Bandar to show the features of applicant's claims. In fact, doing so would result in the paradoxical situation in which behavioral data is simultaneously being grouped (*i.e.*,

grouping channel data in Al Bandar) and prevented from being grouped (i.e., choosing one resulting expression in Black).

The Examiner further asserts "it is obvious to exclude non-current data when determining deceptive vs. truthful behavior in order to more accurately categorize which behaviors were produced as a result of a given answer or part of an answer," and that "it's obvious to accurately categorize behavior data by excluding non-overlapping data in order to detect [Al Bandar's] deceptive periods." See Office Action, § 32. However, applicant submits that the claimed approach is not merely directed to excluding non-current data, but to providing a methodical technique for identifying clusters of deceptive behaviors based on defined timing criteria.

In fact, at face value, the Examiner's contention that it is obvious to exclude non-overlapping data would imply that two non-overlapping behaviors would never be grouped together within a cluster. Nevertheless, in the applicant's approach, two non-overlapping behaviors may be grouped within a cluster in at least two scenarios: (a) when the two non-overlapping behaviors both begin within a prescribed stimulus time interval determined by the stimulus onset and a predetermined period of time after the stimulus termination, or (b) when the two non-overlapping behaviors are linked together by one or more other behaviors that satisfy the criteria for inclusion in the cluster (e.g., the two non-overlapping behaviors may be linked through a chain of overlapping behaviors). Thus, applicant submits it is anything but obvious to exclude non-overlapping behaviors, especially in view of Al Bandar, who, in contrast to the Examiner's position, states that "it may be advantageous to collate the channel statistics from one or more time periods." See Al Bandar, par. 99. Instead, the applicant's claims recite a formulaic approach to determining clusters of deceptive behaviors that involves correlating a number of behaviors, any two of which may or may not overlap.

Accordingly, Al Bandar and Black cannot be combined as suggested by the Examiner and the Examiner's rejection of claims 1 and 6 should be withdrawn.

D. The Rejection of Dependent Claims 8 and 16

Dependent claims 8 and 16 recite, "detecting at least one deceptive behavior responsive to the stimulus that begins after the stimulus time interval and after the end of all prior deceptive behaviors included in the cluster of deceptive behaviors, wherein the detected deceptive behavior is excluded from the cluster of deceptive behaviors." The Examiner asserts that Al Bandar discloses this feature of applicant's claims 8 and 16. In particular, the Examiner argues that Al Bandar classifies some time periods as deceptive and others as truthful and that "by performing the classification in either time period or answer to question segments, deceptive behaviors are excluded from one time period or one question." See Office Action, § 42.

Applicant respectfully submits that, rather than excluding behaviors, Al Bandar in fact accumulates all channel statistics together in order to classify an answer as a truth or lie. See Al Bandar pars. 137 and 138. Specifically, Al Bandar's classification technique accumulates all channel statistics over a given time period and produces an output in the range of -1 to +1, indicating a level of truthfulness. Thus, in contrast to the claimed approach of excluding a detected behavior from the cluster, Al Bandar accumulates all channel data and outputs a value reflecting the sum total of all the accumulated data.

Accordingly, for at least this additional reason, the rejection of claims 8 and 16 should be withdrawn.

E. The Examiner's Official Notice

Dependent claims 18 and 19 recite, *inter alia*, comparing a first annotated record and a second annotated record to identify consistent deceptive information. The Examiner concedes that Al Bandar does not show this feature but takes Official Notice that "it is old and well known to compare records for consistent information." See Office Action, § 45. Applicant respectfully traverses the Examiner's Official Notice.

The Examiner may only take Official Notice of facts outside of the record which are "capable of such instant and unquestionable demonstration as to defy dispute" (see MPEP § 2144.03(A)). The claims recite comparing two records previously annotated to indicate the presence of clusters of deceptive behaviors. Applicant respectfully submits that comparing two documents containing pre-existing information on a level of deceptiveness in order to identify consistent deceptive information was not well known in the art at the time of applicant's invention.

Accordingly, applicant respectfully submits that it is improper for the Examiner to take Official Notice of this feature. If the Examiner maintains the rejection of claims 18 and 19, applicant respectfully requests that the Examiner provide a reference in support of the Official Notice (see MPEP § 2144.03(C)).

F. Conclusion

For at least the reasons listed above neither Al Bandar nor Black nor Greenfield shows or suggests all of the elements of applicant's independent claims 1 and 6. Further, the combination of features to which all of these references cumulatively contribute also falls short of applicant's claimed invention.

Accordingly, for at least the reasons listed above, applicant respectfully requests that the rejections of amended independent claims 1 and 6 under 35 U.S.C. §103(a) be withdrawn. Dependent claims 2-5, 7-12, and 18 are also patentable at least because they depend from patentable independent claim 1. Dependent claims 13-17 and 19 are patentable at least because they depend from patentable independent claim 6. For at least this reason, applicant respectfully requests that the rejection of claims 2-5 and 7-19 under 35 U.S.C. § 103(a) also be withdrawn.

#### Conclusion

For at least the reasons set forth above, applicant respectfully submits that this application, as amended, is in condition for allowance. Reconsideration and prompt allowance of this application are respectfully requested.

Respectfully submitted,

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